Training Course:
Aspen HYSYS: Process Modeling

13 - 24 July 2025
Sharm El-Sheikh (Egypt)
Sheraton Sharm Hotel

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Training Course code: EN234889 From: 13 - 24 July 2025 Venue: Sharm El-Sheikh (Egypt) - Sheraton Sharm Hotel
Training Course Fees: 7450 Euro

Introduction

Optimize process operating conditions, reduce capital costs with accurate thermophysical data for equipment sizing, and drive process sustainability by managing utility costs and emissions to maximize value from plant assets. This Aspen HYSYS: Process Modeling training course will focus on rapidly creating process models using intuitive workflows and highlighting key features of Aspen HYSYS which can help you design and analyze processes and report key performance indicators by performing sophisticated calculations to meet sustainability goals.

Benefits and competencies

- Flowsheet construction under the key features of Aspen HYSYS.
- Multi-flowsheet.
- Reporting simulation results.
- Leveraging the equipment rating capabilities of Aspen HYSYS.
- Convergence characteristics of columns and flowsheets and improvement.
- Troubleshoot common problems.

Training Course Objectives

At the end of this course the participants will be able to:

- Learn to build, navigate and optimize process simulations using Aspen HYSYS.
- Learn efficient use of different HYSYS functions to build advanced steady-state process simulations.
- Leverage the intuitive solving capabilities and other key features of Aspen HYSYS that allow for rapid Flowsheet construction.
- Use the Workbook and Flowsheet interfaces for quick and effective modeling.
- Discover how multi-flow sheet integration can streamline and organize simulation efforts.
- Improve the convergence characteristics of columns and flow sheets; troubleshoot common problems.
- Discover how multi-flowsheet integration can streamline and organize simulation efforts
- Explore different means of reporting results, including the use of Microsoft Excel VB macros
- Evaluate the performance of existing equipment by leveraging the rating capabilities of Aspen HYSYS
- Improve the convergence characteristics of columns and flowsheets; troubleshoot common problems
- Perform Case studies to determine the optimum operating point for a process
- Understand the pipeline hydraulics calculations used to assess the sizing requirements for a gas-gathering system

Target Audience

- Process Engineers with Process simulation experience.
- New engineering graduates/technologists who will be using Aspen HYSYS in their daily work.
- Process engineers doing process design and optimization projects and studies.

- Plant engineers check plant performance under different operating conditions.
- R&D engineers and researchers using Aspen HYSYS for process synthesis

Course Outlines

Day 1

Propane Refrigeration Loop

- Add and connect operations to construct a simple flowsheet.
- Use the graphic interface to manipulate flowsheet objects and provide a clearer representation of the process.
- Understanding how to process information has propagated both forward and backward.
- Convert simulation cases to templates.
- Workshop: Build and analyze a propane refrigeration loop simulation

Day 2

Refrigerated Gas Plant

- Install and converge heat exchangers.
- Use logical operations: Adjust and Balance.
- Workshop: Model a simplified version of a refrigerated gas plant.

Day 3

NGL Fractionation Train

- Model distillation columns with the assistance of the Column Input Expert.
- Manipulate column specifications to better represent process constraints.
- Evaluate utility requirements using the Process Utility Manager.
- Workshop: Model a two-column natural gas liquid NGL recovery plant.

Day 4

Oil Characterization and HP Separation

- Introduce Oil Characterization in Aspen HYSYS.
- Use the Aspen HYSYS Spreadsheet and Case Study functionality.
- Workshop: Use the Oil Environment to characterize a crude assay and then employ the Case Study and Spreadsheet operation to determine how the Gas Oil Ratio GOR varies with pressure.

Day 5

Gas Gathering System

- Simulate a gas gathering system located on varied terrain using the steady-state capabilities of Aspen HYSYS.
- Workshop: Use the pipe segment and the Hydraulics subflowsheet to model a piping network in Aspen HYSYS.

Day 6

Two-Stage Compression

- Introduce the use of the recycling operation.
- Recognize suitable recycling locations.
- Implement performance curves for rotating equipment.
- Workshop: Utilize the recycle operation to build a two-stage compression flowsheet; define and activate compressor curves.

Day 7

Natural Gas Dehydration with TEG

- Review the recommended methods to saturate single-phase and two-phase hydrocarbon streams.
- Discuss the implications of hydrate formation and the different means available to avoid hydrate problems.
- Model a typical TEG dehydration unit.
- Workshop: Model a typical TEG dehydration unit and determine the water dew point for the dry gas; use the hydrate utility to investigate the effects of methanol injection on hydrate inhibition.

Day 8

Rating Heat Exchangers

- Review heat transfer calculation models in Aspen HYSYS.
- Configure a shell and tube heat exchanger to use a built-in Rating model.
- Integrate rigorous Exchanger Design and Rating EDR calculations into an Aspen HYSYS flowsheet.
- Workshop: Use a Rating model to determine if an existing heat exchanger will meet process specifications; design and rate a heat exchanger using the EDR interface inside Aspen HYSYS

Day 9

Troubleshooting / Best Practices

- Introduce best practices for product integration and automation.
- Investigate the reasons why a simulation may produce poor results, consistency errors, etc.
- Identify appropriate thermodynamic models for common processes.
- Use suggested tips to debug simulations and columns.
- Workshop: Troubleshoot existing Aspen HYSYS cases; recognize common problem areas in an Aspen HYSYS case.

Day 10

Reporting in Aspen HYSYS

- Create a variety of customized reports using newly added functionality in the Report Manager.
- Access free Excel utilities designed to extract simulation data.
- Use Aspen Simulation Workbook to deploy models in Microsoft Excel.
- Workshop: Use the Report Manager, Excel utilities, and Aspen Simulation Workbook to obtain custom reports.

Registration form on the Training Course: Aspen HYSYS: Process Modeling

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